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(54) [Title of the Invention]

   IMAGE CONTROL METHOD AND IMAGE OUTPUT SYSTEM

(57) [Abstract]

[Problem to be Solved]

   To allow printing that resembles a print result intended by a user and effectively control print processing of a printing device even if a print condition intended by the user does not match a setting condition set in the printing device.

[Means for Solving Problem]

   It is determined whether or not a print condition with priority 1 matches a setting condition of a laser printer 1000. If it mismatches, information of mismatch is notified to a host computer 3000, and if the print condition matches, it is determined whether or not a print condition with priority 2 mismatches. If the print condition with priority 2 mismatches, it is determined whether or not there is a forced action from an operator. If there is a forced action, the

print condition with priority 2 is ignored, and it is determined whether or not there is a mismatch in a print condition with priority 3. If there is a mismatch in the print condition with priority 3, this print condition is automatically ignored, and the sequential print condition mismatching processing (1) is terminated.

[Claims for the Patent]

[Claim 1]

An image control method characterized by comprising:

an output information detecting step of defining an output condition that is set with respect to image information as output information and detecting the output information from image data received from an image input device;

a priority detecting step of detecting a priority of output processing that is set for each of the output information from the image data;

an information comparing step of comparing setting information to the output information, the setting information being set in an image output device as an output condition of image information which can be outputted; and

an output processing step of, in relation to the output information which does not match the setting information, changing a processing method and performing output processing of the image information according to the priority of the output information.

[Claim 2]

The image control method according to claim 1, characterized in that said output processing step performs processing for prompting resetting of the output information according to the priority or

forcibly performs output processing of the image
information based on the setting information.
[Claim 3]
    The image control method according to claim 1 or 2,
characterized by comprising an output information
setting step of setting the output information
according to processing for prompting resetting the
output information by said output processing step.
[Claim 4]
    The image control method according to claim 1, 2,
or 3, characterized in that said information comparing
step and said output processing step are repeated until
the output processing of the image information is
completed.
[Claim 5]
    The image control method according to any one of
claims 1 to 4, characterized by comprising a priority
content setting step of associating the priority with
the output processing performed according to the
priority.
[Claim 6]
    An image output system characterized by
comprising:
    output information detecting means for defining an
output condition that is set with respect to image
information as output information and detecting the
output information from image data received from an

image input device;

　　priority detecting means for detecting a priority of output processing that is set for each of the output information from the image data;

5　　information comparing means for comparing setting information to the output information, the setting information being set in an image output device as an output condition of image information which can be outputted; and

10　　output processing means for, in relation to the output information which does not match the setting information, changing a processing method and performing output processing of the image information according to the priority of the output information.

15 [Claim 7]

　　The image output system according to claim 6, characterized in that said output processing means performs processing for prompting resetting of the output information according to the priority or

20 forcibly performs output processing of the image information based on the setting information.

[Claim 8]

　　The image output system according to claim 6 or 7, characterized by comprising output information setting

25 means for setting the output information according to processing for prompting resetting the output information by said output processing means.

[Claim 9]

The image output system according to any one of claims 6 to 8, characterized in that said information comparing means continues to compare the setting information to the output information until the output processing of the image information is completed, and if the output information which does not match the setting information is detected until the output processing is completed, said output processing means quickly changes the processing method and performs the output processing according to the priority of the output information.

[Claim 10]

The image output system according to any one of claims 6 to 9, characterized by comprising priority content setting means for associating the priority with the output processing performed according to the priority.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention relates to a print control method and an image output system, and more particularly to a print control method and an image output system which allow printing in a print format that resembles a print condition desired by a user even

if the print condition desired by the user does not match a setting condition set in a printing device.

[0002]

[Conventional Art]

Many of printers manufactured and marketed in recent years are allowed to specify various setting conditions such as a printing paper size, a paper feed size, a paper discharge port, double sided printing, and a staple function, and can perform print processing corresponding to each function by an operator specifying a desired print format as a print condition. These printers have a function of receiving drawing data in which a character and graphics or an image are mixed, created by an application program or the like on a computer, as well as a function of returning printer's setting information to a host computer through an interface which allows bidirectional communication in response to a request from the host computer. Such printer's setting information includes a type of a print head attached to the printer, a size and a type of a paper set in the printer, setting statuses of various switches and levers on the printer, information of various errors and warnings occurred on the printer, processing statuses of printing and cleaning, and so on.

[0003]

For example, operation is performed such that, if

a print head for color printing has been attached to a
printer main body, information representing that the
color print head has been attached is returned
according to a predetermined form data, and, if an A4
5   plain paper has been set in the printer main body,
information representing that the A4 plain paper has
been set, sheet-to-sheet interval selecting lever
setting position information corresponding to a setting
position of a sheet-to-sheet interval selecting lever
10   of the printer main body, or the like is returned
according to a predetermined form data.
[0004]
      In addition, operation is performed such that
according to a predetermined form data, if an out-of-
15   paper error or paper jam error is caused on the printer,
information representing the relevant error is returned,
if the warning about an ink remaining amount is caused,
information representing a warning about the ink
remaining amount is returned, if the printer is
20   performing printing, information representing a status
that printing is being performed is returned, or if the
printer is performing cleaning processing, information
representing a status that cleaning is being performed
is returned.
25   [0005]
      When print processing is performed using such a
printer, there may be a case where a print condition

set by a user is not compatible with a setting
condition set in the printer. If a print condition
does not match a setting condition in a conventional
printer, a method is employed which forcibly performs
5   print processing according to a specific priority order
set in the printer, or which suspends print processing
until the print processing get matched.

[0006]

[Problems to be Solved by the Invention]

10   However, there is a problem that, in a case where
print control is performed based on the print
processing method as described above, if print
processing is carried on while an incorrect print
setting has been set by a user, printing may be
15   forcibly performed in a print format which is never
intended by the user. In addition, in a case where a
printer is connected to a plurality of computers or in
a case where although the printer is connected to one
computer, the computer is connected to a network so
20   that print processing can be performed using this
printer from another computer, there occurs a problem
that if one user sets a print condition that is not
compatible with the setting condition of the printer,
print processing of the printer is stopped and print
25   processing for another user cannot be carried on.

[0007]

In addition, there is a case where, even if a user

sets a print condition compatible with a setting
condition of a printer, when the setting condition of
the printer is changed by a third party while a print
job is being stored in a spooler after the setting, and
5 the print job is sent to the printer, the setting
condition of the printer does not match the print
condition set by the user. In this case, even though
the user inputs the print setting which matches the
setting condition of the printer, there occurs a
10 program that printing may be performed in a print
format that is never intended by the user, and print
processing for another user may be stopped.
[0008]
    The present invention is made in view of these
15 problems, and an object of the present invention is to
provide a print control method and an image output
system which allow printing that resembles a print
result intended by a user and can effectively control
print processing of a printing device used in a network
20 environment or the like, even if a print condition
intended by the user does not match a setting condition
set in the printing device or even if a setting
condition of the printing device is changed so that the
print condition does not match the setting condition
25 after the print processing is started.
[0009]
[Means for Solving the Problems]

To achieve the object by the present invention, the invention according to claim 1 is characterized by including: an output information detecting step of defining an output condition that is set with respect to image information as output information and detecting the output information from image data received from an image input device; a priority detecting step of detecting a priority of output processing that is set for each of the output information from the image data; an information comparing step of comparing setting information to the output information, the setting information being set in an image output device as an output condition of image information which can be outputted; an output processing step of, in relation to the output information which does not match the setting information, changing a processing method and performing output processing of the image information according to the priority of the output information. The above described image data includes image information composed of drawing data such as of a character and graphics, output information representing an output condition set in the input device, and a priority of the output information.

[0010]

The invention according to claim 2 is the invention according to claim 1, characterized in that

the output processing step performs processing for prompting resetting of the output information according to the priority or forcibly performs output processing of the image information based on the setting information.

[0011]

The invention according to claim 3 is the invention according to claim 1 or 2, characterized by including an output information setting step of setting the output information according to processing for prompting resetting the output information by the output processing step.

[0012]

The invention according to claim 4 is the invention according to claim 1, 2, or 3, characterized in that the information comparing step and the output processing step are repeated until the output processing of the image information is completed.

[0013]

The invention according to claim 5 is the invention according to any one of claims 1 to 4, characterized by including a priority content setting step of associating the priority with the output processing performed according to the priority.

[0014]

The invention according to claim 6 is characterized by including: output information

detecting means for defining an output condition that is set with respect to image information as output information and detecting the output information from image data received from an image input device;

priority detecting means for detecting a priority of output processing that is set for each of the output information from the image data; information comparing means for comparing setting information to the output information, the setting information being set in an image output device as an output condition of image information which can be outputted; and output processing means for, in relation to the output information which does not match the setting information, changing a processing method and performing output processing of the image information according to the priority of the output information.

[0015]

The invention according to claim 7 is the invention according to claim 6, characterized in that the output processing means performs processing for prompting resetting of the output information according to the priority or forcibly performs output processing of the image information based on the setting information.

[0016]

The invention according to claim 8 is the invention according to claim 6 or 7, characterized by

including output information setting means for setting
the output information according to processing for
prompting resetting the output information by the
output processing means.

5 [0017]

The invention according to claim 9 is the
invention according to any one of claims 6 to 8,
characterized in that the information comparing means
continues to compare the setting information to the
10 output information until the output processing of the
image information is completed, and if the output
information which does not match the setting
information is detected until the output processing is
completed, the output processing means quickly changes
15 the processing method and performs the output
processing according to the priority of the output
information.

[0018]

The invention according to claim 10 is the
20 invention according to any one of claims 6 to 9,
characterized by including priority content setting
means for associating the priority with the output
processing performed according to the priority.

[0019]

25 [Embodiments of the Invention]

Hereinafter, an image output system according to
the present invention will be described using the

drawings.

[0020]

[Embodiment 1]

Figure 1 depicts a sectional view illustrating a configuration of a laser beam printer used in the image output system. The laser beam printer 1000 includes a control unit 1001 which analyzes character information, an operation panel 1012, a semiconductor laser 1003 which emits a laser beam, a laser driver 1002 which controls the semiconductor laser 1003, a rotating polygonal mirror 1005, a photosensitive member 1006 on which an electrostatic latent image is formed, a development unit 1007 which performs development processing, a paper cassette 1008 which feeds and ejects a recording paper, a feed roller 1009, and conveying rollers 1010, 1011.

[0021]

The control unit 1001 has functions of controlling the laser printer 1000 and analyzing character information and the like supplied from a host computer, and has a role mainly to convert character information to a video signal of a corresponding character pattern and output it to the laser driver 1002.

[0022]

The laser driver 1002 is a circuit for driving the semiconductor laser 1003, and has a role to switch the laser beam 1004 emitted from the semiconductor laser

1003 on/off according to a video signal converted by
the control unit 1001.

[0023]

    The rotating polygonal mirror 1005 has a role to
5 cause the electrostatic drum 1006 to be scanned and
exposed by the laser beam 1004 emitted from the
semiconductor laser 1003 so as to form an electrostatic
latent image of a character pattern on the
electrostatic drum 1006.

10 [0024]

    The development unit 1007 is provided around the
electrostatic drum 1006, and has a function of
developing a latent image formed on the electrostatic
drum and then transferring it to a recording paper.

15 [0025]

    The paper cassette 1008 has a role to store a
recording paper, and the recording paper stored in the
paper cassette 1008 is conveyed by the feed roller 1009
and the conveying rollers 1010, 1011 to the

20 electrostatic drum 1006. As the recording paper, a cut
sheet is used.

[0026]

    The operation panel 1012 is provided with a switch,
an LED indicator, and the like for operating the laser

25 printer 1000, and the operation panel can be operated
to set various settings about the laser printer 1000.

[0027]

The laser printer 1000 configured as described above has a function of inputting and storing print information (character code or the like), form information, a macro instruction or the like which is supplied from a host computer connected to the outside, and creating a character pattern, a form pattern, or the like corresponding to and according to the information to form an image on a recording paper or the like that is a recording medium. The laser printer 1000 includes at least one expansion interface (not shown), and is configured such that an option font ROM in addition to built-in fonts, a control ROM (emulation or the like) having a different language system, and a high-capacity nonvolatile memory element can be connected thereto.

[0028]

Figure 2 is a block diagram for describing a configuration of the image output system according to the present invention, and the image output system is generally composed of a host computer 3000 and a laser printer 1000.

[0029]

The host computer 3000 includes a CPU 1 which performs document processing and a RAM 2 which functions as a main memory, a work area and the like of the CPU 1, a ROM 3 in which information such as font information is recorded, a keyboard 9, a CRT display 10,

an external memory 11, and various controllers 5 to 8 which control data from/to these external devices, and the various devices are connected via a system device 4.

[0030]

The ROM 3 is composed of a program ROM, a font ROM, and a data ROM. The program ROM stores a control program and the like for controlling the CPU 1, the font ROM stores font data and the like used in document processing, and the data ROM stores various data used when document processing or the like is performed.

[0031]

The CPU 1 has a role to perform document processing in which graphics, an image, a character, a table (including table calculating and the like), and the like are mixed, based on a document processing program or the like stored in the program ROM of the ROM 3. In addition, the CPU 1 also includes a function of generally controlling each device connected to the system device 4. For example, it has a role to perform processing for developing (rasterizing) to develop an outline font into a display information RAM configured on the RAM 2 to enable WYSIWYG (i.e., to output one displayed as a display image through a printer as is) on the CRT 10, and to open various registered windows based on commands specified by a mouse cursor and the like on the CRT 10 and perform various data processing.

[0032]

The keyboard controller (KBC) 5 has a role to
control an input from the keyboard 9, a pointing device
or the like (not shown), and the CRT controller (CRTC)
6 has a function of controlling display of the CRT
5   display (CRT) 10. A notification occurred during print
processing to an operator is displayed on the screen of
the CRT display via the CRT controller, and various
settings about print processing set by the operator is
inputted through the keyboard 9.

10   [0033]
The memory controller (MC) 7 has a role to control
access to the external memory 11 such as a hard disk
(HD) or a floppy (R) disk (FD) which stores a boot
program, various application, font data, a user file,
15   an edit file, and the like. The printer controller
(PRTC) 8 has a function of performing communication
control processing with the printer 1000 via a
predetermined bidirectional interface (interface) 21.

[0034]
20   The laser printer 1000 includes a CPU 12 which
performs operation processing of the laser printer 1000,
a RAM 19 which functions as a main memory, a work area,
and the like, a ROM 13 in which information such as
font information is recorded, a printing unit 17, a
25   printing unit interface (I/F) 16 which inputs/outputs
data to/from the printing unit 17, an external memory
14, a main controller 20 which inputs/outputs data

to/from the external memory 14, an input unit 18 which
performs communication with a host computer, and an
operation unit 1012 formed of an operation panel, and
the various devices are connected via the system bus 15.

[0035]

The ROM 13 is composed of a program ROM, a font
ROM, and a data ROM. The program ROM stores a control
program and the like required for the CPU 12 to perform
control in flowcharts shown in Figures 6 to 10 to be
described later, the font ROM stores font data and the
like used in generating output information outputted
from the printing unit 17, and the data ROM stores
information used in the host computer 3000 in
consideration of a case where the external memory such
as a hard disk is not provided to the printer.

[0036]

The CPU 12 has a role to generally control access
to each device connected to the system bus 15 based on
a control program stored in the program ROM of the ROM
13, a control program stored in the external memory 14,
or the like, and to output an image signal as output
information to the printing unit (printer engine) 17
connected thereto via the printing unit interface 16.
In addition, the CPU 12 is configured to be able to
perform communication processing with the host computer
3000 via the input unit 18 and notify the host computer
3000 of information in the laser printer 1000 and the

like.

[0037]

The RAM 19 is used as a main memory, a work area,
and the like of the CPU 12, and used further as an
output information developing area, an environment data
storage area, an NVRAM, and the like. In addition, the
memory capacity of the RAM 19 can be expanded by an
option RAM or the like connected to an expansion port.

[0038]

The external memory 14 is optionally connected to
the laser printer 1000, and a hard disk (HD), an IC
card, and the like are typically used as the external
memory 14. Font data, an emulation program, form data,
and the like are stored in the external memory 14, and
access thereto is controlled by a memory controller
(MC) 20.

[0039]

The operation unit 1012 is the operation panel
described in Figure 1, and is provided with a switch,
an LED indicator, and the like for operating the laser
printer. A notification occurred during print
processing to an operator and various settings by an
operator are made through the operation unit 1012.

[0040]

In the control system configured as described
above, when the CPU 12 is in a state of processing data
or waiting for data from the host, if an event which

initialize a printing environment in such a state
occurs, for example, an initialization instruction
occurs through the operation unit 1012, the CPU 12
notifies the host computer 3000 of a current print
5 condition through the input unit 18, so that the
original printing environment can be easily recovered
even if such an unexpected initialization processing is
performed.

[0041]

10 Next, contents of print control conditions and
their priorities will be described in a case where six
print conditions A, B, C, D, E, F are set in the above
described image output system. Figure 3 is a mapping
diagram which shows a print condition intended by a
15 user and a priority corresponding to the print
condition, in which print conditions A, B are set as
priority 1, print conditions C, D are set as priority 2,
and print conditions E, F are set as priority 3.

[0042]

20 Figure 4 is a diagram which shows an example of
commands prepared for setting priorities of print
conditions, in which PSC A=1 means that print condition
A is set as priority 1. In a similar way, priorities
of print conditions A to F are set. These setting
25 commands can be extended using a typical draw command
such as a PCL (Printer Control Language) or a job
control command such a PJL (Printer Job Language).

[0043]

Figure 5 is a diagram which shows a condition for the start of print processing of a printing device with respect to each priority, that is, meaning of a priority, in which "condition matching is MUST" means that for performing print processing, an operator's print condition is required to match a setting condition of the laser printer 1000, "forced ignoring is enabled" means that an operator's print condition is ignored due to operation of the operator, and print processing is forcibly performed, and "ignoring is enabled" means that a print condition is ignored and print processing is performed.

[0044]

For example, since an operator's print condition is required to match a setting condition of the laser printer 1000 for performing print processing in the case of priority 2, the laser printer 1000 prompts the operator with an instruction to set a print condition until the operator matches the print condition to the setting condition. However, if the operator determines to forcibly carry on the print processing (forced action) by key operation or the like on the operation panel 1012, it is allowed that the print condition is ignored and printing is forcibly performed. In this way, meaning of priorities is intended to set what kind of print processing is performed for each priority when

there is a print condition which does not match a
setting condition.

[0045]

Print processing of the image output system
according to the present invention will be described in
view of the above described print conditions and
priorities. Figure 8 is a flowchart for describing a
processing procedure of the image output system in the
embodiment 1. First, in step S1, it is determined
whether or not there is data with a priority to be
registered (PSC command in Figure 4) in data received
by the laser printer 1000. If there is data with a
priority to be registered, the data is stored in the
RAM 19 in the output device in step S2, and if there is
no data with a priority to be registered, the process
proceeds to step S3. Then, analysis processing of
drawing data is performed in step S3, and developing
processing of the drawing data is performed in step S4,
thereby preparing output of the drawing data. Then, in
step S5, it is determined whether or not print
conditions set by a user match setting conditions of
the printing device set in the laser printer with
respect to all of them. If the print conditions match
the setting conditions, print processing of the drawing
data is performed in step S6 and the drawing data is
outputted onto a recording paper by the printing unit
17 of the laser printer 1000. If the print conditions

do not match the setting conditions, the process
proceeds to print condition mismatching processing (1)
in step S7 to be described later.
[0046]

    Figure 9 is a flowchart for describing the print
condition mismatching processing (1) shown in step S7
of Figure 8. First, in step S11, it is determined
whether or not a print condition with priority 1
matches a setting condition of the laser printer. If
the print condition with priority 1 mismatches,
information of mismatch is notified onto the CRT
display 10 of the host computer 3000, the LED indicator
of the operation unit 1012 of the laser printer 1000,
and the like in step S12, and step S11 is repeated
until an operator makes the print condition match. If
the print condition matches in step S11, it is
determined in step S13 whether or not a print condition
with priority 2 mismatches. If the print condition
with priority 2 mismatches, information of mismatch is
notified as in step S12 to the host computer 3000 and
the laser printer 1000 in step S14, and the process
proceeds to step S15. In step S15, it is determined
whether or not there is a forced action for forcibly
carrying on the print processing from the operator
(that is, an operation for ignoring the print
condition). If there is no forced action like that,
the process returns to step S13, and if there is a

forced action from the operator, the print condition
with priority 2 is ignored and the process proceeds to
step S16. In step S16, it is determined whether or not
there is a mismatch in a print condition with priority
5   3. If there is a mismatch in the print condition with
priority 3, a notification of mismatch is given to the
operator, and this print condition is automatically
ignored and the sequential print condition mismatching
processing (1) is terminated. If there is no mismatch
10   in the print condition with priority 3, a notification
that there is a mismatch is not given to the operator
and the sequential print condition mismatching
processing (1) is terminated. After the sequential
print condition mismatching processing (1) is
15   terminated, the process proceeds to step S6 of Figure 8,
and print processing of the drawing data is performed
and the data processing is completed.

[0047]

     The print processing as described above allows
20   print information to be set again even if a print
condition desired by a user does not match a setting
condition set in the laser printer 1000, and therefore
printing in a print format which is never intended by
the user can be prevented from being performed.

25   [0048]

     In addition, even in a case where one printer is
used by a plurality of persons through a network or the

like, print processing can be quickly carried on by
resetting of print information, and print processing
for another user can be quickly carried on. Therefore,
quick print processing is allowed, and print processing
5   efficiency can be prevented from being reduced.
[0049]
[Embodiment 2]
    Hereinafter, a second embodiment of the image
output system according to the present invention will
10   be described using the drawings. Since the
configurations of a host computer and a laser printer
used in the embodiment 2 are the same as the
configurations described using Figures 1 and 2 in the
embodiment 1, a description thereof will be omitted in
15   the present embodiment. Steps in flowcharts shown in
Figures 10 and 13 in which the same processing as in
the flowcharts illustrated in the embodiment 1 are
performed, are denoted by the same symbols for
description.
20   [0050]
    Figure 13 is a flowchart for describing a
processing procedure of the image output system in the
embodiment 2. The processing procedure shown in Figure
13 is different from the processing procedure of Figure
25   8 used in the embodiment 1 in that determination of
priority registration data in step S1 and priority
registration processing in step S2 are not provided.

First, analysis processing of drawing data is performed in step S3, and developing processing of the drawing data is performed in step S4, thereby preparing output of the drawing data. Then, in step S5, it is determined whether or not print conditions set by a user match setting conditions of the printing device set in the laser printer with respect to all of them. If the print conditions match the setting conditions, print processing of the drawing data is performed in step S6, and if the print conditions do not match, the process proceeds to step S27 and print condition mismatching processing (2) is performed.

[0051]

Figure 10 is a flowchart for describing the print condition mismatching processing (2) shown in step S27 of Figure 13. First, in step S31, a print condition which does not match a setting condition of the laser printer 1000 is notified to an operator. Then, in step S32, it is determined whether or not a priority is specified from the operator. Setting of a priority is set through the operation unit 1012 of the laser printer 1000 or specified using a setting command through the keyboard 9 or the like of the host computer 3000. If a priority is not specified, step S31 and step S32 are repeated. If a priority is specified in step S32, the process proceeds to the print condition mismatching processing (1) of step S33. The print

condition mismatching processing (1) of step S33 is the
processing described in the embodiment 1 using Figure 9.
Thus, the description of the print condition
mismatching processing of Figure 9 will be omitted in
the present embodiment. After the print condition
mismatching processing (1) of Figure 9 is performed,
the process proceeds to step S6 of Figure 13, and print
processing of the drawing data is performed and the
data processing is completed.

[0052]

By the print control illustrated in the above
described embodiment 2, assignment of a priority to a
print condition does not necessarily need to be
performed at the beginning of the print processing as
in the embodiment 1, and is allowed to be performed
immediately before start of the print processing.

[0053]

In addition, as in the embodiment 1, print
information can be set again even if a print condition
desired by a user does not match a setting condition
set in the laser printer 1000, and therefore printing
in a print format which is never intended by the user
can be prevented from being performed.

[0054]

Further, even in a case where one printer is used
by a plurality of persons through a network or the like,
print processing can be quickly carried on by resetting

of print information, and print processing for another user can be quickly carried on. Therefore, quick print processing is allowed, and print processing efficiency can be prevented from being reduced.

[0055]

[Embodiment 3]

Hereinafter, a third embodiment of the image output system according to the present invention will be described using the drawings. Since the configurations of a host computer and a laser printer used in the embodiment 3 are the same as the configurations described using Figures 1 and 2 in the embodiment 1, a description thereof will be omitted in the present embodiment. Steps in flowcharts shown in Figures 11 and 12 in which the same processing as in the flowcharts illustrated in the embodiments 1 and 2 are performed, are denoted by the same symbols for description.

[0056]

Figure 11 is a flowchart for describing a processing procedure of the image output system in the embodiment 3. First, in step S1, it is determined whether or not there is data with a priority to be registered in data received by the laser printer 1000. If there is data with a priority to be registered, the data is stored in the RAM 19 in the output device in step S2, and if there is no data with a priority to be

registered, the process proceeds to step S3. Then, analysis processing of drawing data is performed in step S3, and developing processing of the drawing data is performed in step S4, thereby preparing output of the drawing data. Then, the process proceeds to drawing data print processing (Figure 12) in step S55.

[0057]

Figure 12 is a flowchart for describing the print processing of drawing data shown in step S55 of Figure 11. In step S41, it is determined whether or not there is a mismatch in print conditions. If all of them match, print processing is performed in step S42. Then, it is determined in step S43 whether or not the drawing data is completed, and if it is not completed, the process returns to step S41, and it is determined again whether the print conditions match or not. If there is no mismatch here, the process returns to the flowchart of Figure 11 and terminates. If a mismatch occurs in step S41, for example, if some of the setting conditions do not match specified print conditions in process of the print processing, the process proceeds to the print condition mismatching processing (2) of the step S44. The print condition mismatching processing (2) of the step S44 is the processing described in the embodiment 2 using Figures 9 and 10. Thus, the description of the print condition mismatching processing (2) of Figure 10 and the print

condition mismatching processing (1) of Figure 9 will
be omitted in the present embodiment. If the print
condition mismatching processing (2) of Figure 10 and
the print condition mismatching processing (1) of
Figure 9 are completed, the processing returns to the
flowchart of Figure 11, and the data processing is
completed.

[0058]

By the print control illustrated in the above
described embodiment 3, as in the embodiments 1 and 2,
print information can be set again even if a print
condition desired by a user does not match a setting
condition set in the laser printer 1000, and therefore
printing in a print format which is never intended by
the user can be prevented from being performed.

[0059]

Further, even in a case where one printer is used
by a plurality of persons through a network or the like,
print processing can be quickly carried on by resetting
of print information, and print processing for another
user can be quickly carried on. Therefore, quick print
processing is allowed, and print processing efficiency
can be prevented from being reduced.

[0060]

In addition, even if a mismatch of a print
condition occurs during printing, assignment of a
priority to a print condition can be performed.

Therefore, even in a case where a user sets a print condition compatible with a setting condition of a printer, and then the setting condition of the printer is changed during print processing so that the print condition set by the user does not match the setting condition of the printer, printing in a print format which is never intended by the user can be prevented from being performed, and further print processing of the laser printer 1000 can be easily controlled.

[0061]

[Embodiment 4]

Hereinafter, a fourth embodiment of the image output system according to the present invention will be described using the drawings. Since the configurations of a host computer and a laser printer used in the embodiment 4 are the same as the configurations described using Figures 1 and 2 in the embodiment 1, a description thereof will be omitted in the present embodiment.

[0062]

In the present embodiment, a case where an operator gives a meaning to a priority in processing of the embodiments 1 to 3 will be described. Figure 6 is a diagram which shows a restoring condition of print processing (a condition for restarting the print processing) at a time when a print condition mismatches. In the present embodiment, as a method for restoring

from a mismatching state, a case where a printing
device has four options: restoring conditions X, Y, Z,
V is illustrated.

[0063]

The restoring condition X means that a print
condition must match as a condition for restarting
print processing, and the print processing of a
printing device is stopped until it matches. The
restoring condition Y means that print processing of a
printing device is stopped until a print condition
matches, but due to operation by a user, the print
condition is forcibly ignored and the print processing
is performed. The restoring condition Z means that
print processing is restarted by specifying a password
when a condition mismatches. The restoring condition V
means that a print condition is ignored and print
processing is performed. Associations between these
restoring condition and priorities can be specified by
an operator, and an assignment of such an association
is registered separately from drawing data.

[0064]

Figure 7 is a flowchart for describing priority
meaning giving processing with respect to a restoring
condition. First, in step S61, it is determined
whether or not there is an instruction to register a
priority from an operator in input data. If there is
not registration instruction, this processing is

terminated and data reception processing illustrated in
the embodiments 1 to 3 is performed. If there is a
registration instruction in step S51, in step S62,
information which associates a priority with a
5   restoring condition is recorded in a storage area of
the RAM 19 of the laser printer 1000, and then the
processing described in the embodiments 1 to 3 is
performed.

[0065]

10   By the print control illustrated in the above
described embodiment 4, the advantages described in the
embodiments 1 to 3 are obtained, and furthermore, since
information which associates a priority with a
restoring condition is recorded, and a condition for
15   restart of printing corresponding to a priority of
print information can be set based the information, a
user can perform more detailed print processing control
in a case that a print condition does not match a
setting condition.

20   [0066]

Although the image output system according to the
present invention has been described above in the
embodiments 1 to 4, a printing device used in the
present image output system is not limited to a laser
25   printer, and even if it is a printer which operates in
another printing scheme such as a ink-jet printer, the
same advantages as of the present invention can be

achieved.

[0067]

　　　Further, the image output system according to the
present invention may be a single printer device or a
system composed of a plurality of devices, and it goes
without saying that the present invention can be
applied to a system in which processing is performed
through a network such as a LAN or a system in which a
host computer is connected to a printer one-to-one.

[0068]

　　　Further, an external memory provided in the
printer is not limited to one memory. In other words,
the printer may be provided with at least one external
memory, and may be configured to be connected to a
plurality of external memories such as an option font
card in addition to built-in fonts and an external
memory which stores a program that interprets a printer
control language of a different language system.
Further, a configuration may be employed in which a not
shown NVRAM is provided in the laser printer and
printer mode setting information from the operation
panel 1012 is stored therein.

[0069]

[Advantages of the Invention]

　　　As described above, the present invention has an
output information detecting step of defining an output
condition that is set with respect to image information

as output information and detecting the output information from image data received from an image input device, a priority detecting step of detecting a priority of output processing that is set for each of the output information from the image data, an information comparing step of comparing setting information to the output information, the setting information being set in an image output device as an output condition of image information which can be outputted, and an output processing step of, in relation to the output information which does not match the setting information, changing a processing method and performing output processing of the image information according to the priority of the output information. Thereby, even if a print condition desired by an operator does not match a setting condition set in a printing device, printing can be performed under a condition resembling the print condition desired by the operator, and operating efficiency can be prevented from being reduced.

[Brief Description of the Drawings]

[Figure 1]

Figure 1 depicts a sectional view illustrating a configuration of an image output system according to the present invention.

[Figure 2]

Figure 2 is a block diagram for describing the

configuration of the image output system according to the present invention.

[Figure 3]

Figure 3 is a mapping diagram showing a print condition intended by a user and a priority corresponding to the print condition.

[Figure 4]

Figure 4 is a diagram illustrating commands prepared for setting priorities of print conditions.

[Figure 5]

Figure 5 is a diagram showing meaning of priorities.

[Figure 6]

Figure 6 is a diagram showing a restoring condition of print processing at a time when a print condition mismatches.

[Figure 7]

Figure 7 is a flowchart for describing priority meaning giving processing with respect to a restoring condition in the embodiment 7.

[Figure 8]

Figure 8 is a flowchart for describing a processing procedure of the image output system in the embodiment 1.

[Figure 9]

Figure 9 is a flowchart for describing the print condition mismatching processing (1) shown in step S7

of Figure 8.

[Figure 10]

Figure 10 is a flowchart for describing the print condition mismatching processing (2) shown in step S27 of Figure 13.

[Figure 11]

Figure 11 is a flowchart for describing a processing procedure of the image output system in the embodiment 3.

[Figure 12]

Figure 12 is a flowchart for describing print processing of drawing data shown in step S55 of Figure 11.

[Figure 13]

Figure 13 is a flowchart for describing a processing procedure of the image output system in the embodiment 2.

[Description of Symbols]

1   CPU

2   RAM

3   ROM

4   System bus

12   CPU

13   ROM

14   External memory

15   System bus

16   Printing unit interface

```
 19     RAM

 20     Main controller

 3000   Host computer

 1000   Laser printer

 1001   Control unit

 1003   Semiconductor laser

 1005   Rotating polygon

 1006   Photosensitive member

 1007   Development unit

 1008   Paper cassette

 1012   Operation unit (Operation panel)
```

FIGURE 2

11 EXTERNAL MEMORY

14 EXTERNAL MEMORY

16 PRINTING UNIT I/F

5　17 PRINTING UNIT

18 INPUT UNIT

1000 PRINTER

1012 OPERATION UNIT

3000 HOST COMPUTER

10　#1 FONT ROM

#2 PROGRAM ROM

#3 DATA ROM

FIGURE 3

15　#1 PRINT CONDITION

#2 PRIORITY

FIGURE 4

#1 EXAMPLES OF PRIORITY SETTING COMMAND:

20　#2 PRIORITY SETTING COMMANDS ARE ASSUMED TO BE PSC

FIGURE 5

#1 MEANINGS OF PRIORITIES

#2 PRIORITY 1: CONDITION MATCHING IS MUST

25　#3 PRIORITY 2: CONDITION MATCHING IS MUST, BUT FORCED

IGNORING IS ENABLED

#4 PRIORITY 3: IGNORING IS ENABLED

FIGURE 6

#1 RESTORING CONDITION AT TIME WHEN CONDITION
MISMATCHES, PREPARED BY PRINTING DEVICE:

#2 RESTORING CONDITION X: CONDITION MATCHING IS MUST

#3 RESTORING CONDITION Y: CONDITION MATCHING IS MUST,
BUT FORCED IGNORING IS ENABLED

#4 RESTORING CONDITION Z: PASSWORD INSTRUCTION

#5 RESTORING CONDITION V: IGNORING IS ENABLED

#6 MEANING OF PRIORITIES

#7 PRIORITY 1: CONDITION X

#8 PRIORITY 2: CONDITION Z

#9 PRIORITY 3: CONDITION V

FIGURE 7

S61 THERE IS PRIORITY REGISTRATION BY OPERATOR?

S62 PRIORITY REGISTRATION PROCESSING

#1 PRIORITY MEANING GIVING PROCESSING

#2 END

FIGURE 8

S1 PRIORITY REGISTRATION DATA?

S2 PRIORITY REGISTRATION PROCESSING

S3 DRAWING DATA ANALYSIS PROCESSING

S4 DRAWING DATA DEVELOPING PROCESSING

S5 ALL PRINT CONDITIONS MATCH?

S6 DRAWING DATA PRINT PROCESSING

S7 PRINT CONDITION MISMATCHING PROCESSING (1)

#1 DATA RECEPTION

#2 END OF DATA PROCESSING

5 FIGURE 9

S11 CONDITION WITH PRIORITY 1 MISMATCHES?

S12 NOTIFICATION TO OPERATOR

S13 CONDITION WITH PRIORITY 2 MISMATCHES?

S14 NOTIFICATION TO OPERATOR

10 S15 THERE IS ACTION FORCED BY OPERATOR

S16 CONDITION WITH PRIORITY 3 MISMATCHES?

S17 NOTIFICATION TO OPERATOR & AUTOMATIC FORCED

PROCESSING

#1 PRINT CONDITION MISMATCHING PROCESSING (1)

15 #2 END

FIGURE 10

S31 NOTIFY OPERATOR OF MISMATCHED PRINT CONDITION

S32 THERE IS PRIORITY SPECIFIED BY OPERATOR?

20 S33 PRINT CONDITION MISMATCHING PROCESSING (1)

#1 PRINT CONDITION MISMATCHING PROCESSING (2)

#2 END

FIGURE 11

25 S1 PRIORITY REGISTRATION DATA?

S2 PRIORITY REGISTRATION PROCESSING

S3 DRAWING DATA ANALYSIS PROCESSING

S4 DRAWING DATA DEVELOPING PROCESSING

S55 DRAWING DATA PRINT PROCESSING

#1 DATA RECEPTION

#2 END OF DATA PROCESSING

FIGURE 12

S41 THERE IS MISMATCH IN PRINT CONDITION

S42 PERFORM PRINT PROCESSING

S43 END OF PRINT DATA?

S44 PRINT CONDITION MISMATCHING PROCESSING (2)

#1 DRAWING DATA PRINT PROCESSING

#2 END

FIGURE 13

S3 DRAWING DATA ANALYSIS PROCESSING

S4 DRAWING DATA DEVELOPING PROCESSING

S5 ALL PRINT CONDITIONS MATCH?

S6 DRAWING DATA PRINT PROCESSING

S27 PRINT CONDITION MISMATCHING PROCESSING (2)

#1 DATA RECEPTION

#2 END OF DATA PROCESSING